

CANCER

Cancer researchers at Capital Health are tackling the cancer challenge head on. They are leading and taking part in clinical trials to provide patients with the newest treatment options, while finding ways to improve quality and accessibility of cancer care. At the same time, they are exploring cancer at the molecular level and developing new ways to care for patients' complex needs.

A new focus on cancer clinical trials

Atlantic Clinical Cancer Research Unit puts clinical trials on centre stage

Cancer patients in Nova Scotia will have more opportunities to take part in cutting-edge cancer therapy trials now that the Atlantic Clinical Cancer Research Unit (ACCRU) is up and running. Launched in March 2008, the unit is bringing new energy, focus and vision to Capital Health's clinical trials research effort.

“This is research that affects patients every day,” says ACCRU director Dr. Daniel Rayson, a medical oncologist in the QEII Health Sciences Centre’s Cancer Care Program. “Clinical trials are the essential bridge between scientific knowledge and real-world advances in patient care. This is where the rubber hits the road.”

ACCRU’s mission is to provide as many cancer patients as possible with access to promising new drugs and treatment strategies. At any given time, the staff is coordinating 30 to 40 trials, involving about 150 patients, while following 400 or more patients who have completed clinical trials. The unit conducts these trials in collaboration with cancer research cooperative groups and pharmaceutical and biotechnology companies all around the world.

“We run a range of studies, including phase II trials that test the effectiveness of a type or dose of therapy, and phase III trials that compare two or more therapies to see which is the most effective and/or least toxic,” says Sharon Hebb, ACCRU’s

research manager. Some therapies have the potential to cure, while others slow disease progression.

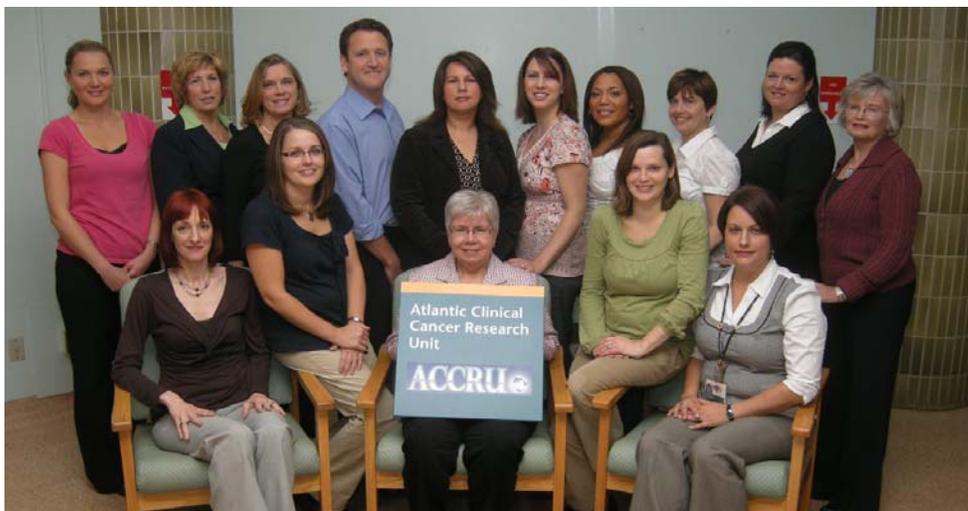
“For many patients, enrolling in a clinical trial is their best or only option to benefit from state-of-the-art advances,” notes Dr. Rayson. “At the same time, clinical trials teach us what works and what doesn’t, influencing cancer therapy for patients everywhere.”

ACCRU is building on the foundation laid by its predecessor, the Clinical Trials Research Unit, with an eye to expanding the geographic and scientific scope of clinical trials.

“One of ACCRU’s major goals is to become the hub of a regional clinical trials network, involving specialists and patients in centres throughout Atlantic Canada,” says Dr. Rayson. “This will help us learn about new treatments faster.”

The new unit also plans to develop the ability to conduct phase I clinical trials, which test the safety of new agents.

ACCRU foresees more ambitious steps in the future. “We’d like to establish a unit to evaluate the cost impact and net benefits of new therapies, and a unit to focus on prevention studies,” Dr. Rayson says. “There is so much potential to improve length and quality of life for people with cancer. That’s our ultimate vision.”



The ACCRU team

Back (l to r): Heather Beaton, Tanya Bell, Kathy MacIsaac, Daniel Rayson, Heather Gage, Stephanie Khoury, Patricia Falconer, Lynn Hubley, Jennifer MacVicar, Susan Burbridge. Front (l to r): Sharon Hebb, Erin Little, Joan Nieforth, Kara Bursey, Kendra Dill.

Clinical Trials Success Stories

As science advances, clinical trials take sophisticated new therapies to patients to confirm they work better than current treatments. As a result, clinical trials are bringing dramatic improvements in survival and quality of life. For example:

- breast cancer deaths have dropped 20 to 25 per cent since the mid 1990s.
- in the past five to ten years, survival rates for metastatic colon cancer have jumped from a median of nine months to a median of two years, with improved quality of life.
- deaths among lung cancer patients have dropped 20 to 25 per cent in the past decade.
- survival and quality of life has improved dramatically for patients with metastatic kidney cancer.
- a rare chemotherapy-resistant gastrointestinal stromal tumour (GIST) is now treated with a pill that improves outcomes in 85 to 90 per cent of patients.
- most new targeted therapies show improvements in survival, with fewer side effects and better quality of life, compared to standard treatments.

ACCRU plays a vital role in bringing new treatments to cancer patients in Atlantic Canada, while advancing standards of care worldwide.

Lifesaving research in action

ACCRU gives Atlantic Canadians access to the latest treatment advances

Often, the QEII Health Sciences Centre is the only site east of Ontario or Quebec involved in a national or international clinical trial. Patients from across the Atlantic region flock to the centre to participate in trials.

ACCRU-run clinical trials involve patients with all major types of cancer, as well as rare forms of the disease. They span the range of treatments – from medical, hormonal and immunological therapies, to surgery and radiation. Here are a few examples of groundbreaking trials conducted through ACCRU:

Prostate:

Radiation oncologist Dr. Derek Wilke has designed a novel trial to test the effectiveness and toxicity of giving chemotherapy and radiation together for prostate cancer. The ELDORADO study is finding the combination is less toxic than predicted, while participants' PSA (prostate-specific antigen) levels are dropping dramatically – a good sign the cancer is under control. "Others have studied chemotherapy either before or after radiation, but no one else has tried them together in prostate cancer," notes Dr. Wilke. "It's feasible because we're using newer, finely targeted radiation to minimize damage to surrounding tissues."

Breast:

Capital Health was one of the top ten sites in Canada for patient accrual to a massive international study of post-operative chemotherapy options for women with potentially curable breast cancer. Preliminary results show that the research protocol developed in Canada will provide important data regarding both survival and quality of life. Another study is testing Avastin, recently approved for colon cancer, to see if it can prevent recurrence of an aggressive kind of 'triple negative' breast cancer.

Kidney:

Medical oncologist Dr. Lori Wood was the local lead on clinical trials that helped get new kidney cancer drugs approved worldwide and funded in much of Atlantic Canada. These sophisticated drugs target pathways specific to kidney cancer, which is resistant to standard chemotherapies. Before these new drugs, the only therapy that had any effect was interferon. This helped only some patients. "The whole standard of care changed with these drugs," says Dr. Wood. "As a result, we're seeing tumours shrink and survival extended."

'Project P' explores four Ps of prostate cancer

'Project P' aims to shed light on the many complex problems of prostate cancer. Led by Dr. David Bell, head of the Department of Urology, this ongoing project is looking onto four key aspects of the disease: prevention, prognosis, prescription and palliation.

"We are building a database so we can analyze characteristics of patients and their disease, as well as treatment and quality-of-life outcomes," says Dr. Bell. "This will allow us to see what works best and measure improvements over time." In addition to testing treatments, Dr. Bell will investigate drugs and nutraceuticals with potential to prevent or slow the progression of prostate cancer.

Clinicians and scientists can use the database and banked tissue samples to shed light on new findings about the biology of prostate cancer, says Dr. Bell. "If a scientist discovers a biomarker they think predicts a more aggressive cancer, we can test their theory by looking for the marker in tissue samples of patients who had aggressive tumours."



Cancer patient Alene Donovan and her medical oncologist, Dr. Daniel Rayson

What patients say about clinical trials...

For some cancer patients, entering a clinical trial is their best or only option. Patients take part for their own sakes and for the benefit of others in the future. Here's what some patients in ACCRU clinical trials have to say:

"There is no treatment for the rare form of cancer I have, which arises in pancreatic islet cells and spreads to the liver. I honestly don't think I would be here if it wasn't for the clinical trial that's testing a new kidney cancer drug on this kind of cancer. As it is, my tumours have shrunk noticeably and I'm feeling well."

— Deborah Davis, neuroendocrine cancer patient

"I wouldn't have been able to access these drugs outside the clinical trial because they are not on the market yet. They are keeping me in a stable state... fatigue is the only major side effect."

— James Ryan, kidney cancer patient

"Given that my cancer was very aggressive, it's reassuring to know I will be followed for 10 years or more through the ELDORADO study. There's no sign of cancer now, but early detection is the key to surviving a recurrence. I appreciate the ongoing surveillance and high-quality care I'm receiving through this clinical trial."

— Angus Emberley, prostate cancer patient

"I felt so well cared for, physically, mentally and emotionally, throughout the clinical trial. I was also one of the first in Nova Scotia to receive Herceptin to prevent recurrent breast cancer, thanks to earlier trials that led to the drug being approved and funded in Nova Scotia. It was a full circle thing for me, participating in trials to help cancer patients in the future, then reaping the benefits of the Herceptin trials. I feel grateful."

— Claire Sullivan, breast cancer patient

Clinical trial a 'lifeline' for one cancer patient

Alene Donovan's journey with breast cancer began on her birthday in 1992, when she discovered a lump. She remained cancer free for 15 years after treatment, but in 2007 discovered the breast cancer had metastasized to her abdomen.

Even though the cancer is in her abdomen, Dr. Daniel Rayson, chair of the Breast Cancer Site Team, took over her care after surgery to investigate and diagnose the cancer. "They are still breast cancer cells," explains Ms. Donovan. When Dr. Rayson told her about an international trial comparing an oral hormone therapy to a combination oral-intravenous hormone therapy, she knew she had to join.

"This study is a lifeline for me," Ms. Donovan says. "I thrive knowing that I'll see Dr. Rayson every eight weeks and that he's following me like a hawk."

The anti-estrogen therapy has arrested the tumour growth and she feels great. "The only side effect is toe cramps," she says, adding that she is back to work full-time as a nurse at the IWK Health Centre. "I'm grateful for this trial, which is helping me and will benefit others."



Claire Sullivan is doing well after taking part in a clinical trial of a new breast cancer treatment protocol. She completed a 300-km hike in France and Italy in October 2008. Here she is, training, a few days before her departure.

Are the new, expensive drugs really worth it?

Capital Health researchers probe the costs and benefits of new cancer therapies

In a climate of escalating drug costs – when a month’s supply of cancer medication can run into thousands of dollars – it’s critical for governments to make well-informed decisions about which cancer therapies to fund. This is where a new area of cancer research, called ‘pharmacoeconomic analysis,’ comes in.

“There are two critical questions we need to ask,” says Dr. Tallal Younis, a Capital Health medical oncologist who studies health economics in breast cancer. “Does the new intervention or treatment provide good value for money? And, can we afford to adopt this new treatment or intervention?”

Dr. Younis is part of a growing group of Capital Health researchers who are taking a closer look at the costs and benefits of new cancer treatments. It’s becoming such an important area of research that the Atlantic Clinical Cancer Research Unit (ACCRU) plans to establish an entire section devoted to pharmacoeconomic analysis.

“When a new cancer drug therapy comes on the market, an economic analysis of that therapy is needed by publicly funded health systems and

often by other types of health systems,” notes medical oncologist Dr. Kiran Virik, a gastrointestinal (GI) cancer specialist whose research interests include health economics in GI cancers.

The researchers use sophisticated mathematical models to analyze complex issues of treatment costs, the social and economic costs of cancer, and treatment benefits in terms of survival and quality-of-life over time.

As Dr. Virik points out, “In an economic analysis, we also examine non-drug costs associated with delivering the treatment.” As she explains, expensive oral cancer drugs have been shown to be cost-effective compared to less expensive intravenous drugs, when indirect costs – such as hospitalizations due to side effects, and patients’ time off work and travel expenses – are taken into account.

But mathematical models can only go so far. “Of course, this kind of research raises ethical dilemmas about how pub-

“In a public system, funding decisions for new cancer drugs must be made within an ethics framework that balances benefits, in years of life and quality of life, with cost.”

— Dr. Tallal Younis, medical oncologist, Dalhousie Faculty of Medicine Clinical Scholar

lic resources should be spent,” says Dr. Younis. “Our data can only inform the people making those decisions.”

In Nova Scotia, those people are the oncologists, pharmacists, health care administrators, ethicists, health economists, cancer survivors, and patient advocates who sit on the Cancer Systemic Therapy Policy Committee. This committee reviews clinical evidence and economic analyses of new drugs, carefully considering ethical issues before making funding recommendations to the Department of Health. The department makes the final decision.

Such decisions are difficult in a public system where, as Mr. Chris Skedgel remarks, “Resources are limited and demands are unlimited.”

A health economist in the Department of Medicine at Capital Health and Dalhousie University, Mr. Skedgel says governments and the public have to look at the ‘opportunity cost’ of spending decisions. “We have to consider what we are NOT funding because we’ve chosen to spend the money on cancer.”

The issues are incredibly complex and speak to society’s values. “It would be a gross oversimplification to make economics the only decision point,” adds Mr. Skedgel. “Society needs to balance the value of a treatment to a particular individual with a sense of fairness to other members of society.”

Dr. Virik agrees: “Costly new drugs pose a funding challenge that can best be solved if governments, pharmaceutical companies and society work together to ensure the best interests of patients.”

Through their detailed analyses of new cancer treatments, Capital Health’s pharmacoeconomics researchers are making a positive difference for Nova Scotians.

“Our work has helped show that various costly new treatments do provide enough value to justify funding,” says Dr. Younis. “Many of these newer and more effective treatments have become the new standard of care in Nova Scotia.”

Dr. Tallal Younis and Mr. Chris Skedgel examine complex issues around the cost of cancer drugs.



The power of pathology research

Capital Health pathologists uncover cancer's secrets in tumour tissues

One of the richest sources of knowledge about cancer can be found in real human cancer tissues. While some cancer researchers study cancer in cell cultures or animal models, pathology researchers study actual tumours that have been removed from patients.

“We analyze biopsies and excised tumours, first with the naked eye, then under the microscope,” says Dr. Penny Barnes, a staff pathologist at the QEII Health Sciences Centre who specializes in breast cancer. “We assess a variety of factors that help determine how the cancer will behave and how it may best be treated.”

By comparing detailed information about tumour biology to data about patients, their cancers, their treatments and how they fared, researchers shed light on crucial issues.

“Studying cancer tissues and the related

patient outcomes can help us predict which tumours are more aggressive and which will respond best to which treatments,” explains Dr. Zhaolin Xu, a QEII staff pathologist who specializes in lung and other thoracic cancers.

Dr. Xu goes a step beyond the microscope to examine molecular changes in lung cancer tissues. He works with thoracic surgeon Dr. Drew Bethune, the National Research Council of Canada, and Dr. Neale Ridgway at Dalhousie’s Atlantic Research Centre, to analyze changes in the proteins that tumours produce. As he notes, “Identifying proteins associated with aggressive cancers will point the way to new targeted treatments.”

Pathology research can also shed light on detection and diagnostic issues. Dr. Barnes and pathologist Dr. Rebecca MacIntosh are studying ‘interval breast cancer’ with the Nova Scotia Breast

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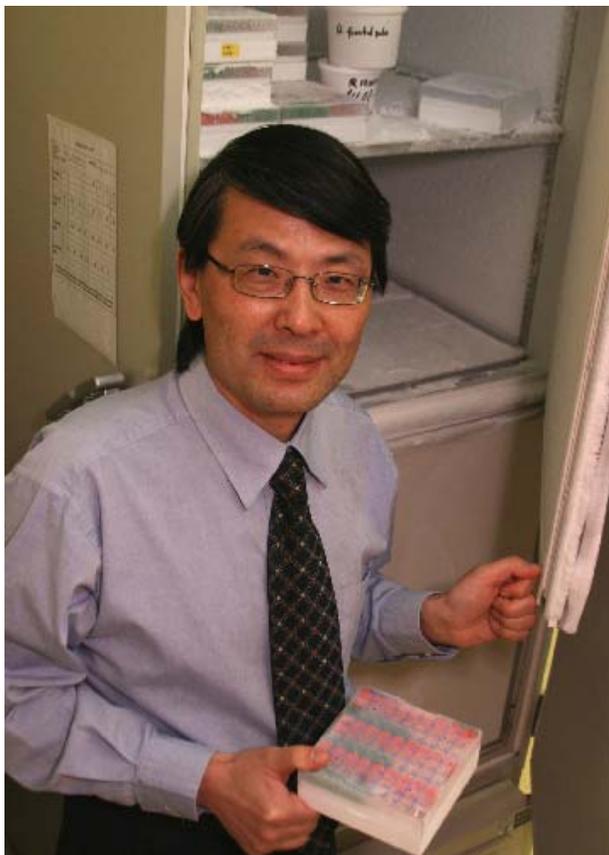
— Dr. Zhaolin Xu, staff pathologist

Screening Program, medical oncologist Dr. Daniel Rayson and radiologist Dr. Judy Caines. This is cancer that arises in the interval between properly scheduled mammograms. In other words, the woman tested negative in her mammogram, but she or her doctor noticed a lump before the next mammogram.

“We’ve found that interval breast cancers are larger, more aggressive and more likely to involve the lymph nodes,” says Dr. Barnes. “These findings raise many questions. Are there factors that may indicate higher risk for this kind of cancer? Is there a screening method that could identify it earlier? We hope to find the answers.”

A key to successful pathology research is the ability to access old tissues. As Dr. Barnes notes, Capital Health stores tissue samples and related patient records going back more than 20 years. “As new proteins and antibodies are discovered, we can analyze archived tissues and compare the pathology to the clinical data,” she explains, adding that these tissues are stored in paraffin blocks.

Dr. Xu stores fresh lung tumour tissues in Atlantic Canada’s first tumour bank — a large, extremely cold freezer that will hold more than 2,000 specimens, forever. As he points out, support from clinicians is essential to pathology research. “Dr. Bethune played a major role in establishing the tumour bank, and all Capital Health’s thoracic surgeons are key collaborators,” he says. “They obtain consent from patients for their tumour tissues and clinical data to be stored and analyzed. Nearly all of the patients agree — people want to help others in the future. Lung cancer is still the deadliest of all cancers.”



Pathologist Dr. Zhaolin Xu has established Atlantic Canada’s first tumour bank. He stores tumour tissues from lung cancer patients at -80°C in this special freezer, purchased with funds from Capital Health, the Departments of Pathology and Surgery, and Dalhousie Medical School. The freezer can store more than 2,000 specimens indefinitely, so they can be analyzed far into the future as new discoveries are made about cancer.

The right care, at the right time, at the right place

Capital Health researchers seek to improve accessibility, timeliness and quality of cancer care

For most people, a diagnosis of cancer brings with it a sense of urgency to begin treatment as quickly as possible. Yet while swift treatment is an important part of quality cancer care, there is more to the quality equation than timeliness.

“Once a cancer has been identified, it needs to be examined to determine the type and stage of the cancer,” notes Dr. Geoff Porter, a surgeon and clinical head of Capital Health’s Cancer Care Program. “Further tests may be needed to ensure the patient receives the most effective treatment. Yet these tests can take time and may not always be optimally integrated into the care path.”

Through research, Dr. Porter aims to improve both the quality and the timeliness of cancer care. “We need to understand both; we do not want an intervention that may improve one element at the expense of the other,” says Dr. Porter, who holds the Gibran and Jamile Ramia – QEII Health Sciences Centre Chair in Surgical Oncology Research.

Dr. Porter is analyzing the care paths of more than a thousand breast and colon cancer patients in Nova Scotia. He is pinpointing what steps are slowing them down along the way – from first symptoms to diagnosis to surgery and to other treatments, like radiation and chemotherapy. Then, he is assessing the impact of these time intervals on cancer outcomes: “Our ultimate goal is to design cancer care paths that will provide both accurate diagnoses and speedy access to care.”

Surgery is the first line of treatment for about 80 per cent of localized solid organ tumours. Dr. Porter is national leader of the breast cancer Synoptic Reporting Tools Project. Funded by the Canadian Partnership Against Cancer, this two-year, \$1.2-million project aims



Dr. Geoff Porter is leading a national project that aims to improve the quality of cancer surgery for all Canadians.

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“We will be testing a web-based system that enables surgeons to provide comprehensive reports after each breast and/or colorectal cancer surgery they perform,” explains Dr. Porter.

Unlike traditional verbal reports, which are dictated then transcribed, the online synoptic reports are standardized. This ensures all bases are covered and allows reports to be compared. Quick and easy to complete, the reports are instantly available to health care professionals, who use them in subsequent decision making. The reports are also sent to a central database, which will become a powerful tool for analyzing cancer surgery practices and outcomes nationwide.

The synoptic reports may also be an effective tool for promoting national cancer surgery guidelines. “It’s not enough to just produce the guidelines,” says Dr. Porter, noting that the project is administered by Cancer Care Nova Scotia’s Surgical Oncology Network. “Through this project, we are building the guidelines right into the reporting process. We want to know if this improves adherence to the guidelines, which will in turn improve the quality of the surgery.”

Team in Access to Colorectal Cancer Care

More than 20 researchers at Dalhousie University and Capital Health have joined forces in a five-year study of colorectal cancer care services in Nova Scotia. Results will have a direct impact on service design and delivery.

The researchers are examining issues of quality and access across the spectrum of cancer services, from screening and diagnosis to treatment, survivorship and end-of-life care. If they find disparities – based on such factors as gender, geography, or socio-economic status – they will work with the project partners to address them.

The \$1.5 million study is funded by the Canadian Institutes of Health Research, with local matching funds from Capital Health, the Nova Scotia Department of Health, Cancer Care Nova Scotia, Dalhousie Cancer Research Program, Dalhousie Medical Research Foundation and Dalhousie Medical School.

Caring for patients, heart and soul

Researchers develop and test innovative ways to tend to cancer patients' emotional, psychological, social and spiritual needs

A diagnosis of cancer can have devastating impacts, not only on the patient but also on his or her family, friends and colleagues. These go far beyond physical suffering. And while health care providers recognize the social, emotional, psychological and spiritual impacts of cancer, many professionals lack the training and tools to address them.

"In surveys conducted around the world, patients consistently rank satisfaction with the care they receive for psychosocial and emotional needs much lower than other aspects of their care," says Dr. Deborah McLeod, a clinician scientist with the Nova Scotia Cancer Centre's psychosocial oncology team. "We hope our work will help change that."

In partnership with the Canadian Association of Psychosocial Oncology, Dr. McLeod is leading a national research project that's attracting attention around the world. Involving 14 universities, the project is designing and testing web-based education programs in psychosocial oncology. Health Canada has invested \$750,000 in the bilingual project, while the Canadian Partnership Against Cancer has provided another \$250,000.

More than 70 graduate students and practicing professionals from all ten provinces and one territory enrolled in the pilot phase of the project. As one student commented in the evaluation, the course permitted "demystification of the role of other health professionals." Another noted that "Much of it was evocative and brought issues to life."

"We aim to nurture communities of learning for faculty and students that cross university and professional boundaries," explains Dr. McLeod. "Such communities are vital for translating knowledge into practice, so that patients' complex needs are met."

This is not the only Capital Health-led



The Nova Scotia Cancer Centre's psychosocial oncology team
 Back (l to r): Deborah McLeod, Brenda Sabo.
 Middle (l to r): Janice Howes, Natalie Rosen, David Maginley, Heather Lowe.
 Front: Joan Hamilton.

research project using the Internet to help cancer patients cope with problems beyond the physical. Several members of the psychosocial oncology team – including Dr. McLeod, PhD candidate and nursing professor Brenda Sabo, and social worker Heather Lowe – are designing online support groups which allow patients to connect with each other, with assistance from a professional facilitator.

The researchers are working with similar projects across the country, including one at Sunnybrook Health Sciences Centre that is testing an online intervention to help couples cope with breast cancer.

Prostate cancer is another area where couple work is vital to the emotional wellbeing of the patient and his/her partner. Dr. McLeod is testing online counseling and support groups, as well as face-to-face counseling programs, to see what sexual rehabilitation approaches best help couples maintain intimacy as they cope with the side effects of prostate cancer treatment.

Recognizing that a patient is distressed is the key to helping him or her cope. That's why Dr. McLeod, clinical psychologist Dr. Janice Howes and others are creating and testing tools and systems for identifying patients in distress. Their goal is to ensure that patients are routinely screened and treated for

psychosocial distress.

Rev. David Maginley, the team's spiritual care specialist, is exploring patients' experiences with a Buddhist meditation practice known as Tonglen. "This ancient practice opens the heart, reduces stress and deepens life," Rev. Maginley explains. "It's an exciting new direction we hope will relieve suffering and distress in cancer patients."

Professional and family caregivers are also heavily prone to distress. Brenda Sabo studies 'compassion fatigue' and burnout among caregivers of patients undergoing bone marrow transplants.

"Caring for the holistic needs of patients and their families is a vital part of cancer care," says Dr. McLeod. "We must do our best to alleviate distress, involve loved ones, and strengthen communication and support – both within couples and families, and between couples and families and health care professionals. Only through research will we know how."

New weapons in the fight against cancer

Capital Health researchers pursue cancer treatments with powerful potential

Capital Health's teaching hospitals have strong ties to Dalhousie University, and most Capital Health-affiliated cancer researchers hold positions at the university. Some are actively involved in laboratory research that's putting potential new cures within reach.

As a cancer surgeon, Dr. Carman Giacomantonio works long hours at the QEII Health Sciences Centre. Yet he somehow finds time to team up with a world-renowned cancer scientist, Dalhousie Medical School's Dr. Patrick Lee, in pursuit of an exciting new approach to fighting cancer.

The researchers are probing the secrets of cancer stem cells – mother cells that keep churning out new cancer cells and play a major role in metastasis. “No matter how many cancer cells you remove or kill, you can't destroy the cancer until you destroy the stem cells,” says Dr. Lee. “Unfortunately, cancer stem cells are resistant to traditional radiation and chemotherapy treatments.”

Dr. Lee and Dr. Giacomantonio are learning how stem cells lead to

metastasis. They are also testing a potential weapon against them: the common and generally harmless human reovirus.

In the 1990s, Dr. Lee made the revolutionary discovery that human reovirus can selectively infect and kill cancer cells. The virus is proving effective against many kinds of cancers in international clinical trials. Now, he and Dr. Giacomantonio – along with numerous graduate students, postdoctoral fellows and research assistants – are testing reovirus against cancer stem cells.

“This work is still in the early stages, but we have found that cancer stem cells are sensitive to reovirus in cell cultures,” says Dr. Giacomantonio. “The next step is to move from the ‘test tube’ into pre-clinical models. We would like to find a way to target reovirus to cancer stem cells, to stop cancer's growth at the source.”

Dr. Giacomantonio is also attracting international attention for his discovery that core needle biopsies may lead to metastasis in breast cancer, by moving cancer cells from the primary tumour into nearby lymph nodes. By learning more about the consequences of core needle biopsy procedures, he hopes to find ways to prevent biopsy-related metastasis.

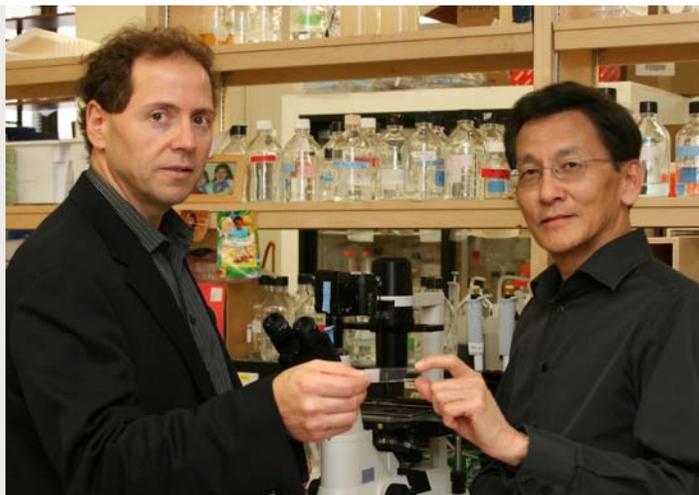
Seeking cures in nature

Dr. David Hoskin looks to nature for inspiration in his quest for cancer cures. The Capital Health-affiliated scientist is developing promising anti-cancer agents based on substances found in milk, fish and culinary spices. For example, he has discovered that lactoferricin, a fragment of a protein found in milk, is highly effective against various forms of leukemia and lymphoma.

“Our bodies have adapted to these foods over millennia, so they are less likely to be toxic to us,” says Dr. Hoskin, a professor at Dalhousie Medical School and first holder of the Canadian Breast Cancer Foundation – Atlantic Region Endowed Chair in Breast Cancer Research. “But consuming them in their natural form is not an effective treatment for an established malignancy... we have to find ways to extract and deliver the active compounds to cancer cells.”

Dr. Hoskin is enthusiastic about the Atlantic Clinical Cancer Research Unit's plans to develop early-stage clinical trials capacity. “The ability to test our experimental treatments in patients locally would be a great advantage,” he says. “The logistics of the trials would be easier to manage and results could benefit local patients sooner.”

Dr. Carman Giacomantonio and Dr. Patrick Lee aim to target a common virus so that it infects and kills cancer stem cells.



Research Focus on Cancer was produced by Capital Health Research Services in the fall of 2008. For further information, contact: Research Services — 902.473.7906. Credit: Melanie Jollymore, writer; Emily Walker, layout.



Capital Health